

AMENDMENTS TO THE CLAIMS

1. (Canceled)

2. (Currently Amended) The system according to claim ~~[[1]]~~ 5 wherein said first conductivity type is p-type.

3. (Currently Amended) A photoconversion device comprising:

a substrate having a surface;

a first doped region having a first conductivity type and located below the surface of the substrate at an ultrashallow depth, wherein said first doped region is doped with indium; and

a second doped region having a second conductivity type located beneath said first doped region for producing photogenerated charges.

~~The photoconversion device of claim 1~~ wherein said first doped region is implanted ~~[[at]]~~ to a depth of about 800 Å.

4. (Canceled)

5. (Original) A photoconversion device comprising:

a substrate having a surface;

a first doped region having a first conductivity type and located below the surface of the substrate at an ultrashallow depth;

a second doped region having a second conductivity type located beneath said first doped region for producing photogenerated charges; and

the first and second doped regions both including indium ions, the indium ions in the first region acting as electron acceptors, the indium ions in the second region acting as electron donors.

6. (Currently Amended) The photoconversion device of claim 5 wherein said first doped region is implanted with indium ~~to~~ at a depth of about 800 Å.

7. (Original) The photoconversion device of claim 5 wherein the concentration of said indium dopant is in the range of about $1 \times 10^{18}/\text{cm}^3$ to $5 \times 10^{18}/\text{cm}^3$.

8. (Currently Amended) ~~An electronic device~~ A photo diode comprising:

a substrate having a surface;

a first doped region having a first conductivity type and located below the surface of the substrate at an ultrashallow depth, ~~wherein said first doped region is doped with indium;~~ and

a second doped region having a second conductivity type located beneath said first doped region; and

the first and second doped regions both including indium ions, the indium ions in the first region acting as electron acceptors, the indium ions in the second region acting as electron donors,

wherein the second doped region collects photo diode generated charges.

9. (Original) The diode of claim 8 wherein said first conductivity type is p-type.
10. (Currently Amended) The diode of claim 8 wherein said first doped region is implanted ~~[[at]]~~ to a depth in the range of about 800 Å.
11. (Original) The diode of claim 8 wherein the concentration of said indium dopant is in the range of about $1 \times 10^{18}/\text{cm}^3$ to $5 \times 10^{18}/\text{cm}^3$.
12. (Currently Amended) A processing system comprising:
- a processor; and
 - an imager coupled to said processor, said imager comprising:
 - a substrate having a surface;

a photosensitive area within said substrate for accumulating photo-generated charge in said area, said photosensitive area having a first doped region having a first conductivity type and located below the surface of the substrate at an ultrashallow depth ~~wherein said first doped region is doped with indium~~ and a second doped region having a second conductivity type located beneath said first doped region; and

a readout circuit comprising at least an output transistor formed on said substrate,

wherein said first and second doped regions are doped with indium.

13. (Original) The system according to claim 12 wherein said first conductivity type is p-type.

14. (Currently Amended) The system according to claim 12 wherein said first doped region is implanted ~~[[at]]~~ to a depth in the range of about 800 Å.

15. (Original) The system according to claim 12 wherein the concentration of said indium dopant is in the range of about $1 \times 10^{18}/\text{cm}^3$ to $5 \times 10^{18}/\text{cm}^3$.

16. (Currently Amended) An imager comprising:

a substrate having a surface;

an array of pixel sensor cells formed on said substrate; each pixel sensor cell comprising:

a photosensitive area within said substrate for accumulating photo-generated charge in said area, said photosensitive area having a first doped region having a first conductivity type and located below the surface of the substrate at an ultrashallow depth ~~wherein said first doped region is doped with indium~~ and a second doped region having a second conductivity type located beneath said first doped region; and

signal processing circuitry formed in said substrate and electrically connected to the array for receiving and processing signals representing an image output by pixels of the array and for providing output data representing said image,

wherein said first and second doped regions are doped with indium.

17. (Original) The imager according to claim 16 wherein said first conductivity type is p-type.

18. (Original) The imager according to claim 16 wherein said first doped region is implanted ~~to~~ at a depth in the range of about 800 Å.

19. (Original) The imager according to claim 16 wherein the concentration of said indium dopant is in the range of about $1 \times 10^{18}/\text{cm}^3$ to $5 \times 10^{18}/\text{cm}^3$.

20-26. (Canceled)